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APR 13 2007

In paragraph 1 of the Office Action claims 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al. (hereinafter Chen) (US 6,724,569 B1), stating:

“Regarding claim 26, Chen discloses a hard disk drive comprising:
at least one hard disk 410 being adapted for rotary motion upon a disk drive;
at least one slider device 420 having a slider body portion being adapted to fly over said hard disk;
a magnetic head (100; part of merged head assembly 420) being formed on said slider body for writing data to said hard disk, said magnetic head [Figure 4] including:
a first magnetic pole 115;
a second magnetic pole 135;
a write gap layer 120 being disposed between said first and second magnetic poles, where said write gap layer includes at least two sublayers 120a, 120c, including an adhesion sublayer and an electrically conductive, non-magnetic sublayer [i.e., layers may be formed of the same, or of different materials; col. 6, lines 6-10].

As the claims are directed to a magnetic head, per se, the method limitation(s) appearing in lines 2 to 8 of claim 26, can only be accorded weight to the extent that it/they affect the structure of the completed magnetic head. Note that “[d]etermination of patentability in ‘product-by-process claims is based on product itself, even though such claims are limited and defined by process [i.e., “electroplating”, “electroplating a second magnetic pole upon said electrically conductive, non-magnetic sublayer”, for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process”, In re Thorpe, et al., 227 USPQ 964 (CAFC 1985). Furthermore, note that a “[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., “electroplating”; “electroplating a second magnetic pole upon said electrically conductive, non-magnetic sublayer”, for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations”, In re Hirao and Sato, 190 USPQ 685 (CCPA 1976).

Regarding claims 27, Chen discloses the gap sublayers are about 200 Angstroms [col. 5, lines 60-64]. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation and optimization in the absence of criticality. In re Swain et al., 33 CCPA (Patents) 1250, 156 F2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F2d 11, 57 USPQ 136.

Applicant finds the rejection to be incomprehensible and therefore respectfully traverses it. Specifically, independent claim 26 is clearly a method claim, whereas the rejection states in part:

"As the claims are directed to a magnetic head, per se, the method limitation(s) appearing in lines 2 to 8 of claim 26, can only be accorded weight to the extent that it/they affect the structure of the completed magnetic head."
Emphasis added

In Applicant's response to the first Office Action, Applicant described independent claim 26 as a method claim in response to the identical ground of rejection.

Regarding independent claim 26, it recites a method for fabricating a magnetic head and it recites the step of electroplating a second magnetic pole upon the electrically conductive, non-magnetic sublayer of the write gap layer. Chen '569 fails to teach the utilization of such a write gap sublayer in fabricating the second magnetic pole directly thereon. Rather, Chen teaches the use of a separate seed layer that is fabricated upon the write gap layer, where the second magnetic pole is electroplated upon the seed layer. Applicant therefore respectfully submits that independent method claim 26 recites limitations that are not taught by Chen '569.

Regarding dependent claim 27, Applicant submits that it is allowable in that it includes subject matter that is not taught by Chen '569, and alternatively, that it is allowable in that it depends directly from allowable independent base claim 26.

In paragraph 2 of the Office Action claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (hereinafter Chen) (US 6,724,569 B 1) as applied to claim 26 above, and further in view of Han et al. (hereinafter Han) (US 6,960,281 B1), stating:

"Regarding claim 28, Chen discloses all the features, supra, except said electrically conductive, non-magnetic sublayer is comprised of a material selected from the group consisting of Rh, Ru, Ir, Mo, W, Au, Be, Pd, Pt, Cu, PtMn and Ta.

Han teaches the use of gap-filling materials NiCr, Cr, NiFeCr, Rh and Ru, that satisfy the equal etch rate criterion of both the shield layer material, the seed layer materials and plated pole portion [col. 3, lines 10-25]. Also, Han teaches a pole piece comprised of a CoFe alloy (i.e., CoNiFe) [col. 3, lines 38-41].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the gap sublayers and the second magnetic pole of Chen with the materials as taught by Han.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the gap sublayers and the second magnetic pole of Chen with the materials as taught by Han because they are known gap layer materials that are used in magnetic heads and using them is merely a substitution of art recognized equivalents.

Regarding claims 29 and 30, Chen discloses said write gap layer 120 also includes a third sublayer 120b that is disposed between said adhesion layer and said electrically conductive, non magnetic sublayer. Chen does teach the third sublayer is comprised of a material that is etchable in reactive ion etch process.

Han teaches the use of gap-filling materials NiCr, Cr, NiFeCr, Rh and Ru, that satisfy the equal etch rate criterion of both the shield layer material, the seed layer materials and plated pole portion [col. 3, lines 10-25].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the gap sublayers of Chen with a third sublayer material as taught by Han.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the gap sublayers of Chen with the a third sublayer material as taught by Han because they are known gap layer materials that are used in magnetic heads and using them is merely a substitution of art recognized equivalents. Plus, the IBE rate is substantially the same as the IBE rate of both the shield layer and the materials of the seed layer and plated pole portion [Han; col. 3, lines 17-20]."

Responsive hereto, Applicant urges that these rejected dependent claims 28-30 are allowable in that they include limitations that are not obvious from the combined teachings of Chen in view of Han '281, and alternatively that they depend either directly or indirectly from allowable independent claim 26, as Applicant has previously asserted in response to the first Office Action.

In paragraph 3 of the Office Action claims 1-25 are allowed.

Responsive hereto, Applicant appreciates the indication of allowability of claims 1-25.

In paragraph 4 of the Office Action it is indicated that Applicant's arguments filed 11/30/2006 have been fully considered but they are not persuasive. The Office Action states:

"The Applicant asserts on page 12 of the Remarks:

"Regarding independent claim 26, it recites a method for fabricating a magnetic head and it recites the step of electroplating a second magnetic pole upon the electrically conductive, non-magnetic sublayer of the write gap layer. Chen '569 fails to teach the utilization of such a write gap sublayer in fabricating the second magnetic pole directly thereon. Rather, Chen teaches the use of a separate seed layer that is fabricated upon the write gap layer, where the second magnetic pole is electroplated upon the seed layer. Applicant therefore respectfully submits that independent method claim 26 recites limitations that are not taught by Chen '569."

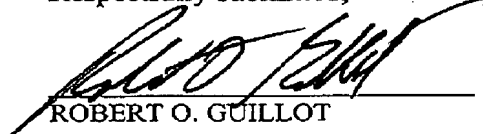
As the claims are directed to a magnetic head, per se, the method limitation(s) appearing in lines 2 to 8 of claim 26, can only be accorded weight to the extent that it/they affect the structure of the completed magnetic head. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "electroplating"; "electroplating a second magnetic pole upon said electrically conductive, non-magnetic sublayer", for instance], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if

prior product was made by a different process", In re Thorpe, et al., 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "electroplating"; "electroplating a second magnetic pole upon said electrically conductive, non-magnetic sublayer", for instance], is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations", In re Hirao and Sato, 190 USPQ 685 (CCPA 1976). Therefore, the rejection of claims 26-30 is upheld."

Responsive hereto Applicant appreciates the Examiner's consideration of Applicant's prior arguments filed 11/30/2006. As indicated above, Applicant continues to assert that independent claim 26 is a method claim, and Applicant therefore does not understand the grounds for this continued rejection which states that claim 26 is directed to "a magnetic head, per se,". Applicant respectfully submits that independent claim 26 is a method claim and that this ground of rejection should be withdrawn.

Having responded to all of the paragraphs of the Office Action, and having amended the claims accordingly, Applicant respectfully submits that the Application is now in condition for allowance. Applicant therefore respectfully requests that a Notice of Allowance be forthcoming at the Examiner's earliest opportunity. Should the Examiner have any questions or comments with regard to this amendment, a telephonic conference at the number set forth below is respectfully requested.

Respectfully submitted,



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